WHITE PAPER

USDA Forest Service Pacific Northwest Region Umatilla National Forest

WHITE PAPER F14-SO-WP-SILV-11

Blue Mountains Vegetation Chronology[1]

David C. Powell; Forest Silviculturist
Supervisor's Office; Pendleton, OR

Initial Version: **JUNE 2004**
Most Recent Revision: **DECEMBER 2016**

INTRODUCTION

The late 1980s and early 1990s in the Pacific Northwest Region of the USDA Forest Service (FS) was an interesting and exciting period for forest policy and natural resources management. This period saw establishment of the Northwest Forest Plan (pertaining primarily to westside national forests), and the Eastside Screens, a package of standards and guidelines that amended Forest Plans for all eastside national forests.

On the westside of the Region, external (non-FS) concerns came to a head regarding forest management and its impact on habitat for the northern spotted owl and marbled murrelet bird species. On the eastside of the Region, external issues centered on declining forest health, a trend reflecting vegetation changes caused by long-standing policies of fire exclusion, livestock grazing, and selective timber harvest.

On the eastside of the Pacific Northwest Region, several broad-scale assessment efforts occurred, including the Gast Report (Blue Mountains Forest Health Report), Caraher Report, Everett Report, and Interior Columbia Basin Ecosystem Management Project. Although the pace of these efforts was amazing, with multiple assessments often occurring simultaneously, they generated an impressive amount of science-based information – and this information continues to contribute significantly to natural resource management in the interior Pacific Northwest.

This white paper provides a chronology of 1990s vegetation assessment efforts affecting the Blue Mountains. Many products resulting from the assessments (generally research reports) are still used, and cited, in planning documents and environmental assessments today. The References section contains most of the published products.

[1] White papers are internal reports; they receive only limited review. Viewpoints expressed in this paper are those of the author – they may not represent positions of the USDA Forest Service.

Date	Event
April 1991	**Blue Mountains Forest Health Report.** Publication of the "Blue Mountains Forest Health Report: New Perspectives in Forest Health" (Gast and others 1991). This report, often referred to as the Gast Report, describes deteriorating forest health conditions for the Malheur, Umatilla, and Wallowa-Whitman national forests in northeastern Oregon and southeastern Washington. Bill Gast, Deputy Forest Supervisor of the Wallowa-Whitman National Forest, was appointed in September 1990 as chair of a committee charged with developing a Blue Mountain Forest Health Implementation Plan.
May 1992	**Eastside Forests Scientific Society Panel.** Seven bipartisan members of the U.S. House of Representatives approach six scientific societies (American Fisheries Society, American Ornithologists' Union, Ecological Society of America, Sierra Biodiversity Institute, Society for Conservation Biology, The Wildlife Society) and ask them to "initiate a review and report on the eastside forests of Oregon and Washington." The societies form what is to become known as the Eastside Forests Scientific Society Panel. The panel's charge was to review the status of eastside forests and report their findings – their final report was issued in August 1994.
1992-1995	**Forest Health Science Reports.** A series of general technical reports describing forest health issues in the Blue Mountains were produced and published by the Pacific Northwest Research Station. Citations for this series of 6 reports, called "Forest Health in the Blue Mountains: Science Perspectives," is provided in the References section (see Forest Health Science Perspectives section).
June 4, 1992	**Ecosystem Management and Clearcutting Memorandum.** Chief F. Dale Robertson issued a memorandum announcing that the Forest Service would begin using a new approach called 'ecosystem management' for future management of national forests and national grasslands (Robertson 1992). Attachment 2 of the memo stated that the Forest Service would reduce clearcutting on national forest system lands and make greater use of individual-tree selection, group selection, shelterwood, seed tree, and other regeneration cutting methods. The expectation was that clearcutting would be reduced by as much as 70 percent. Attachment 3 of the memo stated that clearcutting would no longer be allowed as a standard practice, and that it could only be used under one of the seven circumstances described in the attachment.
July 1992	**Caraher Report.** A document called "Restoring Ecosystems in the Blue Mountains: A Report to the Regional Forester and the Forest Supervisors of the Blue Mountains" was published (Caraher and others 1992). This report, often referred to as the Caraher Report, was prepared by a panel of resource scientists who assessed nine criteria (early seral, late seral park-like, late seral tolerant multistory, high density low vigor ponderosa pine, high density low vigor lodgepole pine, available fuels, juniper-grasslands, riparian shrub cover, streambank stability) for every river basin in the Blue Mountains. The Caraher report was probably the first example in the Pacific Northwest of how to use a concept called the historical range of variability (HRV). The Northern Region of the Forest Service

Date	Event
	initially developed the HRV concept for their Sustaining Ecological Systems (SES) process (USDA Forest Service 1992); the Caraher panel used HRV and other SES principles for a Blue Mountains assessment.
October 1992	**NFJD Restoration Project.** A "Forest Health Restoration" strategy pertaining to the North Fork John Day River basin was released (USDA Forest Service 1992). Based on Caraher Report and SES processes described above, this document identified restoration opportunities for the North Fork John Day River basin. This restoration assessment was described in a Journal of Forestry article (Shlisky 1994).
January 1993	**Blue Mountains Ecosystem Restoration Strategy.** The Forest Supervisors of the Ochoco, Malheur, Umatilla, and Wallowa-Whitman national forests presented a "Blue Mountains Ecosystem Restoration Strategy" to the Regional Forester. It identified a broad range of restoration needs, using a process similar to the one employed by Caraher and others (1992), and totaling $191,000,000. This proposal was designed to be a specially funded, 3-year program to use prescribed fire on 355,000 acres, thin 101,000 acres, reforest 90,000 acres, harvest 180,000 acres, close and obliterate 3,270 miles of road, reconstruct 1,580 miles of road, rehabilitate 1,290 miles of stream, produce about 700 million board feet of timber commodities, and create 1,840 new jobs in forest restoration (Lucas 1993, Schmidt and others 1993). When added to the Forests' normal budgets for these activities, the overall program would have approached $250,000,000. Note: Although current FS employees smile (or snicker) when they hear about the three Blue Mountains national forests submitting a restoration package totaling 191 million dollars to the Washington Office, as though such a large request had any legitimate chance of being funded (or being seriously considered), it does demonstrate that Forest employees of the early 1990s were well aware that substantial backlogs had developed in the timber stand improvement, prescribed fire, reforestation, and road restoration program areas.
March 30, 1993	**NRDC Old-Growth Petition.** A petition prepared by the Natural Resources Defense Council (NRDC) was delivered to Regional Forester John Lowe; it sought to halt timber harvest (logging) in old-growth forests on the national forests of eastern Oregon and eastern Washington. Premise of the petition was that existing habitat for old-growth-dependent wildlife species was not being adequately protected by the timber sale program as implemented at that time.
April 2, 1993	**Clinton Forest Summit.** President Bill Clinton fulfilled a campaign promise by convening a forest conference in Portland, Oregon. It was designed to address gridlock over management of federal forestlands in the Pacific Northwest and the resulting effects on communities and the regional economy. The President, Vice President Al Gore, numerous cabinet members, and other presidential advisors heard many regional interests and perspectives. At the close of the conference, President Clinton committed to prepare a plan within 60 days to address problems discussed during the conference.

Date	Event
	Note: Earle Rother, public affairs officer for the Umatilla NF at the time, served on a team of FS employees who assisted with the Forest Conference in Portland.
April 1993	**Everett Report.** Release of the "Eastside Forest Ecosystem Health Assessment" (often referred to as the Everett Report after team leader Dr. Richard Everett). The assessment was prepared in response to a May 1992 request from U.S. House Speaker Tom Foley and U.S. Senator Mark Hatfield for a scientific evaluation of the effects of Forest Service management practices on the sustainability of forest ecosystems in eastern Oregon and eastern Washington. More than 100 scientists worked for more than a year on the assessment; the Pacific Northwest Research Station published assessment findings as a series of general technical reports in 1994 and 1995 (see 'Everett Report' section in References).
June 1993	**Region 6 Forest Health Assessment.** The report "A First Approximation of Ecosystem Health, National Forest Lands, Pacific Northwest Region" (USDA Forest Service 1993) was released; it described many forest health problems affecting eastside forests. This report was designed to provide baseline data supporting an ecosystem-based strategy for Oregon and Washington.
July 1, 1993	**Eastside Strategy.** President Clinton includes the following statement in his charter establishing the Northwest Forest Plan initiative: "management of eastside forests will need to focus on restoring the health of forest ecosystems impacted by poor management practices of the past…The president is directing the Forest Service to develop a scientifically sound and ecosystem-based strategy for management of eastside forests. This strategy should be based on the forest health study recently completed by agency scientists as well as other studies." This direction eventually resulted in the Interior Columbia Basin Ecosystem Management Project (ICBEMP). The ICBEMP study area, which covered slightly more than 145 million acres, was one of the largest broad-scale assessment and planning efforts ever attempted for the United States.
August 18, 1993	**Eastside Screens.** Release of an "Interim Approach for Sale Preparation, Eastside Forests." This interim direction, generally known as the Eastside Screens, established timber-sale 'screens' pertaining to riparian habitat, late/old forest structure and old-growth dependent wildlife habitat. The Eastside Screens, issued in response to an NRDC petition dated March 30, 1993, were designed to incorporate findings from the Eastside Forest Health Assessment directed by Richard Everett. The Blue Mountain national forests began issuing policy guidance to ensure consistent implementation of the "ecosystem" screen (Johnson 1993). White paper F14-SO-WP-SILV-53, *Eastside Screens Chronology*, provides a detailed history of the Screens and how they evolved.
September 19, 1993	**Screens Lawsuit.** Prairie Wood Products files suit (Prairie Wood Products v. Espy, 936288 TC (D. Or.); Judge Hogan) to challenge the Eastside Screens ("the screening process") based on 10 specific contentions related to apparent violations of NFMA, NEPA, and other acts and

Date	Event
	agency regulations. Specific contentions are that the process is: 1) inconsistent with forest plans; 2) violates plan amendment requirements; 3) increases threat of fire, insects, and disease; 4) re-designates suitable timberlands; 5) violates riparian area regulations; 6) was developed without interdisciplinary analysis; 7) was developed without public participation; 8) disregarded specific vegetation and site conditions; 9) failed to comply with mandatory procedure for formulating standards; and 10) is an arbitrary and capricious agency action.
January 21, 1994	**ICBEMP Charter.** Chief of the USDA Forest Service (FS) and Director of the USDI Bureau of Land Management (BLM) signed a charter to establish the Interior Columbia Basin Ecosystem Management Project (ICBEMP), with headquarters in Walla Walla, Washington. This project resulted in broad-scale and mid-scale ecosystem assessments covering over 145 million acres, of which more than 75 million are federal lands administered by the FS and BLM in seven western states. Many science reports were produced by ICBEMP (see ICBEMP Science Reports section at the end of References).
March 1994	**PACFISH EA.** An environmental assessment is issued for the "Implementation of interim strategies for managing anadromous fish-producing watersheds in eastern Oregon and Washington, Idaho, and portions of California" (USDA Forest Service; USDI Bureau of Land Management 1994). This interim direction was designed to "arrest the degradation and begin the restoration of aquatic habitat and riparian areas on lands administered by the Forest Service and BLM; it applies to watersheds outside the range of the northern spotted owl that provide habitat for Pacific salmon, steelhead, and sea-run cutthroat trout."
May 20, 1994	**RF Forest Plan Amendment #1.** Regional Forester John Lowe signs the Decision Notice for Regional Forester's Forest Plan Amendment #1, which amended all Forest Plans for Eastside national forests to include the Eastside Screens as new standards and guidelines. Timber sales offered after the effective date of the amendment must be found consistent with the amended Forest Plan for each eastside National Forest. Note that RF Forest Plan Amendment #1 is Amendment #8 to the Umatilla National Forest Land and Resource Management Plan.
August 1994	**Scientific Society Panel Report.** The Eastside Forests Scientific Society Panel released a report called "Interim Protection for Late-Successional Forests, Fisheries, and Watersheds" (Henjum and others 1994). The U.S. Congress chartered this panel in May 1992 to "initiate a review and report on the eastside forests of Oregon and Washington" (see May 1992 listing in this table). The report provides interim recommendations for preventing further degradation of remaining resources until more comprehensive data are gathered and a protection and restoration plan could be implemented. Note: In a similar strategy to one used with the Beschta Report (see March 1995), commenters representing environmental organizations routinely reference (and quote from) the Scientific Society Panel Report

Date	Event
	in their response to environmental analysis documents concerning forest management treatments.
October 19, 1994	**Screens Lawsuit Decision.** In the Prairie Wood Products v. Espy case, the Court issues an order enjoining the Forest Service from applying the Eastside Screens to any remaining 1993 timber sales until it complies with Forest Plan amendment and public participation requirements.
October 1994	**RF Screens Review.** Regional Forester John Lowe charters a team to review implementation of the Eastside Screens interim direction. Many of the internal concerns were related to the Screens' impact on managing insect- or disease-affected stands.
Late 1994	**Inland West Forest Health Report.** American Forests and other organizations published a book called "Assessing Forest Ecosystem Health in the Inland West" (Sampson and Adams 1994). It was designed to assess ecosystem health for much of the interior Pacific Northwest, including the Blue Mountains.
March 1995	**Beschta Report.** The original Beschta Report (Beschta et al. 1995), "Wildfire and Salvage Logging: Recommendations for Ecologically Sound Post-fire Salvage Logging and Other Post-fire Treatments," was commissioned by Pacific Rivers Council. Produced as a typewritten, mimeographed report, it was apparently not peer-reviewed or published in a credible scientific outlet (such as a journal). The Beschta report, circulated widely within the environmental activist community, was mentioned frequently by commenters during public scoping or in response to environmental documents including EAs and EISs. A salvage project proposed during the late 1990s or early 2000s, in any western USFS region, was ultimately required to respond to this report. Beschta report commenters advocated that natural recovery of burned landscapes, an approach involving little or no human intervention, was an optimal policy for public forests, and one that was supported by other relevant literature. A group of US Forest Service research scientists were asked to review the Beschta report; they concluded it was biased toward a custodial (passive management) approach, and that it is generally accepted in the science community that limiting post-fire management to just a single approach (whether custodial or commodity) is inappropriate because forest sites encompass a wide range of variability, and this variability points to the need for site-specific plans addressing each salvage situation on a case-by-case basis (Everett 1995). Note: A revised version of the Beschta Report (Beschta et al. 2004) was published in a scientific journal (Conservation Biology). Since this version was peer reviewed and is available from a credible science source, it is considered to have more credibility than the original report.
March 14, 1995	**Screens Revisions.** An interdisciplinary team is tasked with analyzing a revision to the Eastside Screens. The proposed action is to revise the ecosystem screen's forest structure classification on which an historical range of variability determination is made. The revised structural classification was based on an updated (and expanded) classification prepared for the ICBEMP project; it was eventually published in the Western

Date	Event
	Journal of Applied Forestry (O'Hara et al. 1996). White paper F14-SO-WP-SILV-53, *Eastside Screens Chronology*, provides a detailed history of the Screens and how they were revised.
June 12, 1995	**RF Forest Plan Amendment #2.** Regional Forester John Lowe signs the Decision Notice for the "Revised Continuation of Interim Management Direction Establishing Riparian, Ecosystem and Wildlife Standards for Timber Sales" (Regional Forester's Forest Plan Amendment #2), which amended all eastside Forest Plans to include the revised Eastside Screens as standards and guidelines (USDA Forest Service 1995). Note that RF Forest Plan Amendment #2 is Amendment #11 to the Umatilla National Forest Land and Resource Management Plan. The Umatilla NF issued policy guidance to ensure consistent implementation of the revised ecosystem screen on the Forest (Blackwood 1998, Powell 1998). White paper F14-SO-WP-SILV-53, *Eastside Screens Chronology*, provides a detailed history of the Screens and how they amended.
April-June 1995	**Oregon Governor's Forest Science Panel.** A 10-member Eastside Forest Science Panel is convened by Oregon Governor Kitzhaber and asked to review timber harvest practices in eastern Oregon. The panel tours Blue Mountain areas in early April of 1995; they release a report called "Forest health and timber harvest on national forests in the Blue Mountains of Oregon: a report to Governor Kitzhaber" on June 15, 1995 (Johnson and others 1995). Governor Kitzhaber appoints an Eastside Forest Advisory Panel in April 1995; it consists of 9 citizens from central and eastern Oregon (original chairman was Dave Cash, editor of the East Oregonian newspaper in Pendleton).
June 1997	**Oregon Governor's Forest Health Strategy.** Oregon Governor Kitzhaber releases a document called "Proposed Eastside Forest Health Strategy." This document describes an 11-point strategy for restoring eastern Oregon forests, watersheds and communities. It was released again in April 2001 by Kitzhaber, Regional Forester Harv Forsgren, and BLM Oregon state director Elaine Zielinski (Kitzhaber and others 2001).

REFERENCES

Many items cited in this section are research reports published by FS research stations, especially the Pacific Northwest Research Station headquartered in Portland. FS research reports are generally available in digital form from Treesearch (http://www.treesearch.fs.fed.us/).

Beschta, R.L.; Frissell, C.A.; Gresswell, R.; Hauer, R.; Karr, J.R.; Minshall, G.W.; Perry, D.A.; Rhodes, J.J. 1995. Wildfire and salvage logging. Unpub. Rep. [Place of publication unknown]: [Publisher unknown]. 15 p.

Blackwood, J.D. 1998 [December 11]. Historical percentages for use with HRV analyses. 2430/2600 memorandum to District Rangers. Pendleton, OR: USDA Forest Service, Umatilla National Forest, Supervisor's Office. 8 p.

Caraher, D.L.; Henshaw, J.; Hall, F.; Knapp, W.H.; McCammon, B.P.; Nesbitt, J.; Pedersen, R.J.; Regenovitch, I.; Tietz, C. 1992. Restoring ecosystems in the Blue Mountains: a report to the Regional Forester and the Forest Supervisors of the Blue Mountain forests. Portland, OR: USDA Forest

Service, Pacific Northwest Region. 14 p (plus 5 appendices).

Cochran, P.H.; Geist, J.M.; Clemens, D.L.; Clausnitzer, R.R.; Powell, D.C. 1994. Suggested stocking levels for forest stands in northeastern Oregon and southeastern Washington. Res. Note PNW-RN-513. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 21 p.

Everett, R. 1995. Review of recommendations for post-fire management. 4410-1-2 memorandum to Regional Forester, R-6. Wenatchee, WA: Pacific Northwest Research Station, Wenatchee Forestry Sciences Laboratory. 19 p.

Gast, W.R., Jr.; Scott, D.W.; Schmitt, C.; Clemens, D.; Howes, S.; Johnson, C.G., Jr.; Mason, R.; Mohr, F.; Clapp, R.A. 1991. Blue Mountains forest health report: "new perspectives in forest health." Portland, OR: USDA Forest Service, Pacific Northwest Region, Malheur, Umatilla, and Wallowa-Whitman National Forests. 300 p.

Henjum, M.G.; Karr, J.R.; Bottom D.L.; Perry, D.A.; Bednarz, J.C.; Wright, S.G.; Beckwitt, S.A.; Beckwitt, E. 1994. Interim protection for late-successional forests, fisheries, and watersheds; national forests east of the Cascade crest, Oregon, and Washington. Wildlife Society Technical Review 94-2. Bethesda, MD: The Wildlife Society. 245 p.

Johnson, C.G. 1993. Ecosystem screens. File designation 2060 memorandum. Baker City, OR: USDA Forest Service, Pacific Northwest Region, Wallowa-Whitman National Forest. 4 p (plus exhibits).

Johnson, K.N.; Agee, J.; Beschta, R.; Beuter, J.; Gregory, S.; Kellogg, L.; McComb, W.; Sedell, J.; Schowalter, T.; Tesch, S. 1995. Forest health and timber harvest on national forests in the Blue Mountains of Oregon: a report to Governor Kitzhaber. Corvallis, OR: Oregon State University. 51 p.

Kitzhaber, J.A.; Forsgren, H.; Zielinski, E. 2001. An 11-point strategy for restoring eastern Oregon forests, watersheds and communities (dated April 13). Three-page enclosure with a memorandum to Forest Supervisors and District Managers (file code 2510; memorandum dated June 14, 2001).

Lucas, E. 1993. Burning question: thinning and fires prescribed for pest-infested forests. Horizon Air. 4(3): 12-13, 28, 30-31.

McLean, H.E. 1992. The Blue Mountains: forest out of control. American Forests. 98(9/10): 32, 34-35, 58, 61.

O'Hara, K.L.; Latham, P.A.; Hessburg, P.; Smith, B.G. 1996. A structural classification for inland Northwest forest vegetation. Western Journal of Applied Forestry. 11(3): 97-102.

Powell, D.C., comp. 1998. Potential natural vegetation of the Umatilla National Forest. Unnumbered Rep. Pendleton, OR: USDA Forest Service, Umatilla National Forest. 31 p.

Powell, D.C. 1999. Suggested stocking levels for forest stands in northeastern Oregon and southeastern Washington: an implementation guide for the Umatilla National Forest. Tech. Pub. F14-SO-TP-03-99. Pendleton, OR: USDA Forest Service, Pacific Northwest Region, Umatilla National Forest. 300 p.

Powell, D.C.; Rockwell, V.A.; Townsley, J.J.; Booser, J.; Bulkin, S.P.; Martin, T.H.; Obedzinski, B.; Zensen, F. 2001. Forest density management: recent history and trends for the Pacific Northwest Region. Tech. Pub. R6-NR-TM-TP-05-01. Portland, OR: USDA Forest Service, Pacific Northwest Region. 21 p.

Robertson, F.D. 1992 (June 4). Ecosystem management of the national forests and grasslands. File designation 1330-1 memorandum. Washington, DC: USDA Forest Service, Washington Office. 8 p (plus 3 attachments).

Sampson, R.N.; Adams, D.L., eds. 1994. Assessing forest ecosystem health in the inland west. Binghamton, NY: Food Products Press (Haworth Press). 461 p. isbn:1-56022-052-X

Schmidt, T.; Boche, M.; Blackwood, J.; Richmond, B. 1993. Blue Mountains ecosystem restoration strategy: a report to the Regional Forester. Unnumbered Report. Portland, OR: USDA Forest Service, Pacific Northwest Region. 12 p (plus appendices).

Shlisky, A.J. 1994. Multiscale analysis in the Pacific Northwest. Journal of Forestry. 92(8): 32-34.

USDA Forest Service. 1992. Our approach to sustaining ecological systems. R1-92-23. Missoula, MT: USDA Forest Service, Northern Region. 26 p.

USDA Forest Service. 1992. Summary report: forest health restoration project. Unnumbered Report. Pendleton, OR: USDA Forest Service, Pacific Northwest Region, Umatilla National Forest. 26 p (and appendices).

USDA Forest Service. 1993. A first approximation of ecosystem health; national forest system lands, Pacific Northwest Region. Portland, OR: USDA Forest Service, Pacific Northwest Region. 109 p.

USDA Forest Service; U.S. Department of Interior, Bureau of Land Management. 1994. Environmental assessment for the implementation of interim strategies for managing anadromous fish-producing watersheds in eastern Oregon and Washington, Idaho, and portions of California (PACFISH). Washington, DC. 68 p [plus 5 appendices, a biological evaluation, and a proposed finding of no significant impact].

USDA Forest Service. 1995. Revised interim direction establishing riparian, ecosystem and wildlife standards for timber sales; Regional Forester's Forest Plan Amendment #2. Portland, OR: USDA Forest Service, Pacific Northwest Region. 14 p.

EASTSIDE FOREST ECOSYSTEM HEALTH ASSESSMENT (EVERETT REPORT)

Agee, J.K. 1994. Fire and weather disturbances in terrestrial ecosystems of the eastern Cascades. Gen. Tech. Rep. PNW-GTR-320. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 52 p.

Bormann, B.T.; Brookes, M.H.; Ford, E.D.; Klester, A.R.; Oliver, C.D.; Weigand, J.F. 1994. Volume V: a framework for sustainable ecosystem management. Gen. Tech. Rep. PNW-GTR-331. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 61 p.

Everett, R.; Hessburg, P.; Jensen, M.; Bormann, B. 1994. Volume 1: executive summary. Gen. Tech. Rep. PNW-GTR-317. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 61 p.

Everett, R.L. 1994. Volume 4: restoration of stressed sites, and processes. Gen. Tech. Rep. PNW-GTR-330. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 123 p.

Harvey, A.E.; Geist, J.M.; McDonald, G.I.; Jurgensen, M.F.; Cochran, P.H.; Zabowski, D.; Meurisse, R.T. 1994. Biotic and abiotic processes in eastside ecosystems: the effects of management on soil properties, processes, and productivity. Gen. Tech. Rep. PNW-GTR-323. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 71 p.

Hessburg, P.F.; Mitchell, R.G.; Filip, G.M. 1994. Historical and current roles of insects and pathogens in eastern Oregon and Washington forested landscapes. Gen. Tech. Rep. PNW-GTR-327. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 72 p.

Huff, M.H.; Ottmar, R.D.; Alvarado, E.; Everett, R.L.; Vihnanek, R.E.; Lehmkuhl, J.F.; Hessburg, P.F. 1995. Historical and current forest landscapes in eastern Oregon and Washington; part II: linking vegetation characteristics to potential fire behavior and related smoke production. Gen. Tech. Rep. PNW-GTR-355. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 43 p.

Irwin, L.L.; Cook, J.G.; Riggs, R.A.; Skovlin, J.M. 1994. Effects of long-term grazing by big game and livestock in the Blue Mountains forest ecosystems. Gen. Tech. Rep. PNW-GTR-325. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 49 p.

Jensen, M.E.; Bourgeron, P.S. 1994. Volume II; ecosystem management: principles and applications. Gen. Tech. Rep. PNW-GTR-318. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 376 p.

Johnson, C.G., Jr.; Clausnitzer, R.R.; Mehringer, P.J., Jr.; Oliver, C.D. 1994. Biotic and abiotic processes of eastside ecosystems: the effects of management on plant and community ecology, and on stand and landscape vegetation dynamics. Gen. Tech. Rep. PNW-GTR-322. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 66 p.

Lehmkuhl, J.F.; Hessburg, P.F.; Everett, R.L.; Huff, M.H.; Ottmar, R.D. 1994. Historical and current forest landscapes of eastern Oregon and Washington; part I: vegetation pattern and insect and disease hazards. Gen. Tech. Rep. PNW-GTR-328. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 88 p.

Marcot, B.G.; Wisdom, M.J.; Li, H.W.; Castillo, G.C. 1994. Managing for featured, threatened, endangered, and sensitive species and unique habitats for ecosystem sustainability. Gen. Tech. Rep. PNW-GTR-329. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 39 p.

McIntosh, B.A.; Sedell, J.R.; Smith, J.E.; Wissmar, R.C.; Clarke, S.E.; Reeves, G.H.; Brown, L.A. 1994. Management history of eastside ecosystems: changes in fish habitat over 50 years, 1935 to 1992. Gen. Tech. Rep. PNW-GTR-321. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 55 p.

Oliver, C.D.; Irwin, L.L.; Knapp, W.H. 1994. Eastside forest management practices: historical overview, extent of their applications, and their effects on sustainability of ecosystems. Gen. Tech. Rep. PNW-GTR-324. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 73 p.

Robbins, W.G.; Wolf, D.W. 1994. Landscape and the intermontane northwest: an environmental history. Gen. Tech. Rep. PNW-GTR-319. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 32 p.

Wissmar, R.C.; Smith, J.E.; McIntosh, B.A.; Li, H.W.; Reeves, G.H.; Sedell, J.R. 1994. Ecological health of river basins in forested regions of eastern Washington and Oregon. Gen. Tech. Rep. PNW-GTR-326. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 65 p.

FOREST HEALTH SCIENCE PERSPECTIVES SERIES (PNW RESEARCH STATION)

Johnson, C.G., Jr. 1994. Forest health in the Blue Mountains: a plant ecologist's perspective on ecosystem processes and biological diversity. Gen. Tech. Rep. PNW-GTR-339. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 24 p.

Mutch, R.W.; Arno, S.F.; Brown, J.K.; Carlson, C.E.; Ottmar, R.D.; Peterson, J.L. 1993. Forest health in the Blue Mountains: a management strategy for fire-adapted ecosystems. Gen. Tech. Rep. PNW-GTR-310. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 14 p.

Quigley, T.M. 1992. Forest health in the Blue Mountains: social and economic perspectives. Gen. Tech. Rep. PNW-GTR-296. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 9 p.

Starr, G.L.; Quigley, T.M. 1992. Forest health in the Blue Mountains public forums: April-June, 1991. Portland, OR: USDA Forest Service, Pacific Northwest Region, Blue Mountains Natural Resources Institute. 88 p.

Tanaka, J.A.; Starr, G.L.; Quigley, T.M. 1995. Strategies and recommendations for addressing forest health issues in the Blue Mountains of Oregon and Washington. Gen. Tech. Rep. PNW-GTR-350. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 18 p.

Wickman, B.E. 1992. Forest health in the Blue Mountains: the influence of insects and disease. Gen. Tech. Rep. PNW-GTR-295. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 15 p.

INTERIOR COLUMBIA BASIN ECOSYSTEM MANAGEMENT PROJECT (ICBEMP)

There is an impressive collection of published literature resulting from ICBEMP. This section focuses exclusively on reports published by FS research stations because they are available in digital form from Treesearch (http://www.treesearch.fs.fed.us/). Readers should also be aware that many journal papers resulted from ICBEMP – one example is a Special Issue of Forest Ecology and Management entitled "The Science Basis for Ecosystem Management in the Interior Columbia River Basin" (volume 153, issues 1-3, pages 1-200; 2001). This special issue contains 12 journal papers.

Bunting, S.C.; Kingery, J.L.; Hemstrom, M.A.; Schroeder, M.A.; Gravenmier, R.A.; Hann, W.J. 2002. Altered rangeland ecosystems in the interior Columbia Basin. Gen. Tech. Rep. PNW-GTR-553. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 71 p.

Haynes, R.W.; Graham, R.T.; Quigley, T.M. 1996. A framework for ecosystem management in the interior Columbia basin and portions of the Klamath and Great basins. Gen. Tech. Rep. PNW-GTR-374. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 68 p.

Hessburg, P.F.; Smith, B.G.; Kreiter, S.D.; Miller, C.A.; Salter, R.B.; McNicholl, C.H.; Hann, W.J. 1999. Historical and current forest and range landscapes in the interior Columbia River basin and portions of the Klamath and Great basins. Part 1: linking vegetation patterns and landscape vulnerability to potential insect and pathogen disturbances. Gen. Tech. Rep. PNW-GTR-458. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 357 p.

Hessburg, P.F.; Smith, B.G.; Miller, C.A.; Kreiter, S.D.; Salter, R.B. 1999. Modeling change in potential landscape vulnerability to forest insect and pathogen disturbances: methods for forested subwatersheds sampled in the midscale interior Columbia River basin assessment. Gen. Tech. Rep. PNW-GTR-454. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 56 p.

Hessburg, P.F.; Smith, B.G.; Kreiter, S.D.; Miller, C.A.; McNicoll, C.H.; Wasienko-Holland, M. 2000. Classifying plant series-level forest potential vegetation types: methods for subbasins sampled in the midscale assessment of the interior Columbia basin. Res. Pap. PNW-RP-524. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 59 p.

Hessburg, P.F.; Smith, B.G.; Salter, R.B. 1999. Using estimates of natural variation to detect ecologically important change in forest spatial patterns: a case study, Cascade Range, eastern Washington. Res. Pap. PNW-RP-514. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 65 p.

Keane, R.E.; Long, D.G.; Menakis, J.P.; Hann, W.J.; Bevins, C.D. 1996. Simulating coarse-scale vegetation dynamics using the Columbia River basin succession model – CRBSUM. Gen. Tech. Rep. INT-GTR-340. Ogden, UT: USDA Forest Service, Intermountain Research Station. 50 p.

Quigley, T.M. 2000. Index to selected science publications of the interior Columbia basin ecosystem mananagement project. Unnumbered Report. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 61 p.

Quigley, T.M.; Arbelbide, S.J., tech. eds. 1997. An assessment of ecosystem components in the interior Columbia basin and portions of the Klamath and Great basins: volume I. Gen. Tech. Rep. PNW-GTR-405. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 4 volumes: 1-335.

Quigley, T.M.; Arbelbide, S.J., tech. eds. 1997. An assessment of ecosystem components in the Interior Columbia Basin and portions of the Klamath and Great basins: volume II. Gen. Tech. Rep. PNW-GTR-405. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 4 volumes: 337-1055.

Quigley, T.M.; Arbelbide, S.J., tech. eds. 1997. An assessment of ecosystem components in the interior Columbia basin and portions of the Klamath and Great basins: volume III. Gen. Tech. Rep. PNW-GTR-405. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 4 volumes: 1057-1713.

Quigley, T.M.; Arbelbide, S.J., tech. eds. 1997. An assessment of ecosystem components in the interior Columbia basin and portions of the Klamath and Great basins: volume IV. Gen. Tech. Rep. PNW-GTR-405. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 4 volumes: 1715-2066.

Quigley, T.M.; Cole, H.B. 1997. Highlighted scientific findings of the interior Columbia basin ecosystem management project. Gen. Tech. Rep. PNW-GTR-404. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 34 p.

Quigley, T.M.; Gravenmier, R.A.; Arbelbide, S.J.; Cole, H.B.; Graham, R.T.; Haynes, R.W., tech. eds. 1999. The interior Columbia basin ecosystem management project: scientific assessment. Station

Misc. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 20 p (plus 1 CD-ROM).

Quigley, T.M.; Gravenmier, R.A.; Graham, R.T., tech. eds. 2001. The interior Columbia basin ecosystem management project: project data. Station Miscellaneous. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 12 p (plus 5 CD-ROMs).

Quigley, T.M.; Haynes, R.W.; Graham, R.T. 1996. Integrated scientific assessment for ecosystem management in the interior Columbia basin. Gen. Tech. Rep. PNW-GTR-382. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 303 p.

USDA Forest Service. 1996. Status of the interior Columbia basin: summary of scientific findings. Gen. Tech. Rep. PNW-GTR-385. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 144 p.

Wisdom, M.J.; Holthausen, R.S.; Wales, B.C.; Hargis, C.D.; Saab, V.A.; Lee, D.C.; Hann, W.J.; Rich, T.D.; Rowland, M.M.; Murphy, W.J.; Eames, M.R. 2000. Source habitats for terrestrial vertebrates of focus in the interior Columbia basin: broadscale trends and management implications. Gen. Tech. Rep. PNW-GTR-485. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 3 vol. 529 p.

APPENDIX: SILVICULTURE WHITE PAPERS

White papers are internal reports, and they are produced with a consistent formatting and numbering scheme – all papers dealing with Silviculture, for example, are placed in a silviculture series (Silv) and numbered sequentially. Generally, white papers receive only limited review and, in some instances pertaining to highly technical or narrowly focused topics, the papers may receive no technical peer review at all. For papers that receive no review, the viewpoints and perspectives expressed in the paper are those of the author only, and do not necessarily represent agency positions of the Umatilla National Forest or the USDA Forest Service.

Large or important papers, such as two papers discussing active management considerations for dry and moist forests (white papers Silv-4 and Silv-7, respectively), receive extensive review comparable to what would occur for a research station general technical report (but they don't receive blind peer review, a process often used for journal articles).

White papers are designed to address a variety of objectives:

(1) They guide how a methodology, model, or procedure is used by practitioners on the Umatilla National Forest (to ensure consistency from one unit, or project, to another).
(2) Papers are often prepared to address ongoing and recurring needs; some papers have existed for more than 20 years and still receive high use, indicating that the need (or issue) has long standing – an example is white paper #1 describing the Forest's big-tree program, which has operated continuously for 25 years.
(3) Papers are sometimes prepared to address emerging or controversial issues, such as management of moist forests, elk thermal cover, or aspen forest in the Blue Mountains. These papers help establish a foundation of relevant literature, concepts, and principles that continuously evolve as an issue matures, and hence they may experience many iterations through time. [But also note that some papers have not changed since their initial development, in which case they reflect historical concepts or procedures.]
(4) Papers synthesize science viewed as particularly relevant to geographical and management contexts for the Umatilla National Forest. This is considered to be the Forest's self-selected 'best available science' (BAS), realizing that non-agency commenters would generally have a different conception of what constitutes BAS – like beauty, BAS is in the eye of the beholder.
(5) The objective of some papers is to locate and summarize the science germane to a particular topic or issue, including obscure sources such as master's theses or Ph.D. dissertations. In other instances, a paper may be designed to wade through an overwhelming amount of published science (dry-forest management), and then synthesize sources viewed as being most relevant to a local context.
(6) White papers function as a citable literature source for methodologies, models, and procedures used during environmental analysis – by citing a white paper, specialist reports can include less verbiage describing analytical databases, techniques, and so forth, some of which change little (if at all) from one planning effort to another.
(7) White papers are often used to describe how a map, database, or other product was developed. In this situation, the white paper functions as a 'user's guide' for the new product. Examples include papers dealing with historical products: (a) historical fire extents for the Tucannon watershed (WP Silv-21); (b) an 1880s map developed from General Land Office survey notes (WP Silv-41); and (c) a

description of historical mapping sources (24 separate items) available from the Forest's history website (WP Silv-23).

The following papers are available from the Forest's website: Silviculture White Papers

Paper #	Title
1	Big tree program
2	Description of composite vegetation database
3	Range of variation recommendations for dry, moist, and cold forests
4	Active management of dry forests in the Blue Mountains: silvicultural considerations
5	Site productivity estimates for upland forest plant associations of the Blue and Ochoco Mountains
6	Fire regimes of the Blue Mountains
7	Active management of moist forests in the Blue Mountains: silvicultural considerations
8	Keys for identifying forest series and plant associations of the Blue and Ochoco Mountains
9	Is elk thermal cover ecologically sustainable?
10	A stage is a stage is a stage…or is it? Successional stages, structural stages, seral stages
11	Blue Mountains vegetation chronology
12	Calculated values of basal area and board-foot timber volume for existing (known) values of canopy cover
13	Created opening, minimum stocking, and reforestation standards from the Umatilla National Forest Land and Resource Management Plan
14	Description of EVG-PI database
15	Determining green-tree replacements for snags: a process paper
16	Douglas-fir tussock moth: a briefing paper
17	Fact sheet: Forest Service trust funds
18	Fire regime condition class queries
19	Forest health notes for an Interior Columbia Basin Ecosystem Management Project field trip on July 30, 1998 (handout)
20	Height-diameter equations for tree species of the Blue and Wallowa Mountains
21	Historical fires in the headwaters portion of the Tucannon River watershed
22	Range of variation recommendations for insect and disease susceptibility
23	Historical vegetation mapping
24	How to measure a big tree
25	Important insects and diseases of the Blue Mountains
26	Is this stand overstocked? An environmental education activity
27	Mechanized timber harvest: some ecosystem management considerations
28	Common plants of the south-central Blue Mountains (Malheur National Forest)
29	Potential natural vegetation of the Umatilla National Forest
30	Potential vegetation mapping chronology
31	Probability of tree mortality as related to fire-caused crown scorch
32	Review of the "Integrated scientific assessment for ecosystem management in the interior Columbia basin, and portions of the Klamath and Great basins" – forest vegetation
33	Silviculture facts

Paper #	Title
34	Silvicultural activities: description and terminology
35	Site potential tree height estimates for the Pomeroy and Walla Walla ranger districts
36	Tree density protocol for mid-scale assessments
37	Tree density thresholds as related to crown-fire susceptibility
38	Umatilla National Forest Land and Resource Management Plan: forestry direction
39	Updates of maximum stand density index and site index for the Blue Mountains variant of the Forest Vegetation Simulator
40	Competing vegetation analysis for the southern portion of the Tower Fire area
41	Using General Land Office survey notes to characterize historical vegetation conditions for the Umatilla National Forest
42	Life history traits for common conifer trees of the Blue Mountains
43	Timber volume reductions associated with green-tree snag replacements
44	Density management field exercise
45	Climate change and carbon sequestration: vegetation management considerations
46	The Knutson-Vandenberg (K-V) program
47	Active management of quaking aspen plant communities in the northern Blue Mountains: regeneration ecology and silvicultural considerations
48	The Tower Fire…then and now. Using camera points to monitor postfire recovery
49	How to prepare a silvicultural prescription for uneven-aged management
50	Stand density conditions for the Umatilla National Forest: a range of variation analysis
51	Restoration opportunities for upland forest environments of the Umatilla National Forest
52	New perspectives in riparian management: Why might we want to consider active management for certain portions of riparian habitat conservation areas?
53	Eastside Screens chronology
54	Using mathematics in forestry: an environmental education activity
55	Silviculture certification: tips, tools, and trip-ups
56	Vegetation polygon mapping and classification standards: Malheur, Umatilla, and Wallowa-Whitman national forests
57	The state of vegetation databases on the Malheur, Umatilla, and Wallowa-Whitman national forests
58	Seral status for tree species of the Blue and Ochoco Mountains

REVISION HISTORY

March 2014: The first version of this white paper was prepared in June 2004. Minor formatting and editing changes were made, including adding a white-paper header and assigning a white-paper number. An appendix describing the white paper system was added, including a list of available white papers.

December 2016: minor editing changes were made, and an Introduction section was added.